

## Rediscovery of *Amorphophallus longiconnectivus* Bogner, a little known rare endemic species of Araceae

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### Abstract

*Amorphophallus longiconnectivus* Bogner has been collected recently from its type locality after 87 years of its first collection. As the species was described based on a single specimen, detailed description of the species was not available. The present paper provides detailed description and illustration of the species based on recent collection.

### INTRODUCTION

*Amorphophallus longiconnectivus* Bogner, a little known rare endemic species has been rediscovered from its type locality in Madhya Pradesh, after it was first discovered by Haines in the year 1910. As the first description was based on only a single herbarium specimen representing inflorescence, detailed description of this species was not available.

The genus *Amorphophallus* Blume ex Decaisne, is a member of the tribe Thomsonieac of the sub-family Aroideae and has about 170 species distributed in tropical Africa, Madagascar, tropical Asia, Malay Archipelago, Melanesia and Australia (Mayo, Bogner & Boyce, 1997). Engler (1911) divided the genus into 11 sections. It is the second largest genus of Araceae occurring in India and is represented by about 16 species.

The species *A. longiconnectivus* was first collected by Haines during his visit to Piparia in the month of June 1910. No later collections of the species are known to have been made. The herbarium specimen of its first collection is available in Kew (K). During a recent field trip carried out in connection with the research project on *Revision of Indian Araceae*, the species was rediscovered from its type locality – Piparia – in Madhya Pradesh. The present collection is the second authentic collection of the species after about 87 years of its discovery and first collection by Haines. The plants were collected in vegetative and fruiting stages during August 1997, and in flowering stage during July 1998.

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As the only source of published information available about the species is the incomplete description provided by Bogner (1995) based on a single herbarium specimen representing only inflorescence, a detailed description and illustrations of vegetative and reproductive structures are provided here.

**Amorphophallus longiconnectivus** Bogner, Kew Bull. 50(2): 397. 1995. (Fig. 1)

Tuber subglobose or depressed globose, 4.5-7.0 cm diam., 2-5 cm thick (in vegetative phase); 6.5-8.0 cm diam., 4-6 cm thick (in flowering phase); roots numerous, 0.1-0.2 cm diam., offsets small, globose or fusiform, ca. 6-12 in number, each 0.8-1.0 cm diam., 1.2-1.8 cm high; leaf with petiole cylindric, 35-77 cm long, 1.2-2.3 cm in diam. at base, slightly tapering to the tip, smooth, light green with dark brownish narrow elongated stripes, paler towards the tip portion; leaflets sessile, linear-lanceolate, 14.0-17.5 cm in length and 2-4 cm width, acuminate at apex, acute at the base, base unequal and decurrent on rachis, greenish above, pale below; margin slightly undulate, secondary lateral veins close, united below the margin forming a submarginal collective vein.

Inflorescence with peduncle smooth, 62-110 cm long, 1.2-1.7 cm diam. at base, gradually narrowed to the tip, identical with petiole in colour and pattern of stripes; spathe erect, broadly ovate or broadly triangular, usually broader than long, 10-14 cm long, tip acute, convolute, not differentiated into basal tube and upper limb, outside pale green in colour, inside pale purplish; base dark purplish, verrucose; spadix as long as or slightly smaller than spathe, stipitate, stipe ca. 1 cm long, ca. 1.2 cm diam., pale green in colour; female zone 1.3-2.5 cm long, 1.2-1.4 cm diam., neutral flower zone between male and female zones ca. 0.8-0.9 cm long, 1.2-1.4 cm diam., male zone 3.2-4.0 cm long, 0.8-1.3 cm diam., sterile flower zone 1.5-3.0 cm with sterile flowers, rarely with few scattered fertile stamens; usually terminal stipitate appendix present.

Female flowers sub-spirally arranged, ovary subglobose, ca. 2 mm high, ca. 2.5 mm diam., greenish, 2-3-locular, each locule with a semi-anatropous ovule, style very short, ca. 1 mm long; stigma 2-3-lobed, 1-2 mm diam., papillate; neuter zone with loosely arranged thick-

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Explanation of Fig. 1. A. Habit - with leaf; B. Habit - with inflorescence; C. Inflorescence with spathe cut open showing spadix; D. Single female flower; E. Stigma - view front top; F. Female flower - L.S., G. ovary - C.S.; H. Male flower - dorsal view; I. Male flower - ventral view; J. Male flower - C.S.; K,L,M. Neuter flowers; N. Sterile flowers; O. Spadix appendix showing rudimentary structures few of which resembling male flowers; P. Spadix appendix showing rudimentary structures few of which resembling female flowers; Q,R,S. Schematic diagrams showing various kinds of spadices; Q. Spadix with terminal stipitate appendix; R. Spadix without terminal appendix; S. Spadix without neuter flowers and spadix appendix (AS - stipe of spadix; AX - spadix appendix; FZ - female zone; NZ - neuter zone; MZ - male zone; SS - stipe of spadix; SZ - sterile flower zone).

Rediscovery of *Amorphophallus longiconnectivus* BognerFig. 1. *Amorphophallus longiconnectivus* Bogner

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based echinate fleshy neutral flowers, each 0.3-0.5 cm long, ca. 0.1 cm broad at base, rarely few with forked tips. Male flowers closely arranged, golden yellow in colour, each 2-3 mm long, 1-2 mm diam., filaments short, flat, thecae lateral, ellipsoid, 1.5-2.5 mm long; connective projected to 1-1.5 mm above the level of the thecae. Sterile flowers more or less subulate, creamy in colour. Spadix appendix stipitate, stipe 0.3-0.8 cm long, 0.25-0.4 cm diam., green in colour, terminal part ca. 0.7-0.8 cm long, ca. 0.3 cm diam., bearing irregularly formed rudimentary male or female flowers or irregular protuberances. Rarely plants without neutral flowers and spadix-appendix are also observed. Fruits ellipsoid, 0.8-1.0 cm long, 0.6-0.8 cm diam.; seeds 2-3, ellipsoid, 0.6-0.8 cm long, 0.4-0.6 cm diam.

*Distribution:* So far known to occur only in Piparia, Madhya Pradesh.

*Flowering:* June - July.

*Fruiting:* August-September.

*Specimens examined:* Madhya Pradesh, Piparia, 28th Aug. 1997, *Abdul Jaleel & Bobby Thomas RIA 131* (leaf) (CALI), *RIA 132* (with fruits) (CALI); *Ibid.*, 16th July., 1998, *Abdul Jaleel, RIA 316* (with Inflorescence) (CALI).

*Notes:* Bogner (1995) stated that *Amonphophallus longiconnectivus* is very distinct and seems closest to *Amorphophallus* sect. *Rhaphiophallus* which includes *A. hohenackeri* (Schott) Engl. & Gehrm., *A. margaritifer* (Roxb.) Kunth, *A. mysorensis* E. Barnes & C.E.C. Fischer, *A. smithsonianus* Sivadasan and *A. sylvaticus* (Roxb.) Kunth. The sect. *Rhaphiophallus* is characterised by the presence of a zone of neuter flowers between male and female zones. *A. longiconnectivus* is very unique in various aspects and is highly variable in its inflorescence structure. The variations are schematically represented under Fig. 1, Q-S. Usually the spadix has a stipe (SS), followed by a female zone (FZ) of female flowers, a neuterillorous zone (NZ), a male zone (MZ) of male flowers, an upper sterile flower zone (SZ), and spadix appendix (AX) with a stipe (AS). Schematic representation of the typical spadix of *A. longiconnectivus* is given under Fig. 1, Q. But variation from the typical condition has also been noted. In some specimens (Fig. 1, R) the spadix appendix is completely lacking. In some, both basal neuteriflorous zone (NZ) and spadix appendix (AX) are lacking (Fig. 1,S). But the latter condition is very rare.

The connectives of the male flowers exhibit variation in their length. Flowers of the basal part of the male zone are with comparatively longer protruding connectives, whereas they are shorter, in the flowers of the upper part. In inflorescences without appendices, male flowers have longer connectives compared to that of other inflorescences.

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Appendix of the spadix also exhibits variation. In some cases the appendix bears irregularly formed structures, some of which resemble rudimentary sterile male flowers; in others it bears structures some of which resemble irregularly formed female flowers. Based on the observations of the specimens, it is concluded that there is tremendous variation in the basic organisation of the spadix in *A. longiconnectivus*.

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